

## CHANGE ISSUE – RTCA/DO-242

# MASPS for ADS-B

## Rev. A

Tracking Information (committee secretary only)	
Change Issue Number	60
Submission Date	2/14/02
Status (open/closed/deferred)	Rev. A – CLOSED
Last Action Date	2/22/02

Short Title for Change Issue:	Acquisition Range Requirements for Orthogonal Encounter Scenarios
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MASPS Document Reference:		Originator Information:	
Entire document (y/n)	No	Name	Tony Warren
Section number(s)	3.3.3.1	Phone	425-373-2677
Paragraph number(s)		E-mail	Anthony.w.warren@boeing.com
Table/Figure number(s)	Table 3-4, note 3	Other	Appendix H

Proposed Rationale for Consideration (originator should check all that apply):	
<input checked="" type="checkbox"/>	Item needed to support of near-term MASPS/MOPS development
<input checked="" type="checkbox"/>	DO-260/ED-102 1090 MHz Link MOPS Rev A
<input type="checkbox"/>	ASA MASPS
<input type="checkbox"/>	TIS-B MASPS
<input checked="" type="checkbox"/>	UAT MOPS
<input type="checkbox"/>	Item needed to support applications that have well defined concept of operation
<input type="checkbox"/>	Has complete application description
<input type="checkbox"/>	Has initial validation via operational test/evaluation
<input type="checkbox"/>	Has supporting analysis, if candidate stressing application
<input checked="" type="checkbox"/>	Item needed for harmonization with international requirements
<input checked="" type="checkbox"/>	Item identified during recent ADS-B development activities and operational evaluations
<input checked="" type="checkbox"/>	MASPS clarifications and correction item
<input type="checkbox"/>	Validation/modification of questioned MASPS requirement item
<input type="checkbox"/>	Military use provision item
<input type="checkbox"/>	New requirement item (must be associated with traffic surveillance to support ASAS)

Nature of Issue:	<input type="checkbox"/> Editorial	<input type="checkbox"/> Clarity	<input checked="" type="checkbox"/> Performance	<input type="checkbox"/> Functional
<u>Issue Description:</u>  <p>Note 3 of Table 3-4(a) states that the 90 nmi range requirement for Flight Path Deconfliction Planning applies in the forward direction and gives a minimum range requirement of 45 nmi for a 90 degree conflict scenario. The basis of this requirement is to give at least 4.5 minutes alert time (Table 2-3) for two aircraft traveling at a maximum sustained speed of 600 knots. From simple geometry calculations, the acquisition range to meet this requirement for a 90 degree conflict scenario should be <math>90 \text{ nm} / \sqrt{2} \sim 64 \text{ nmi}</math>, rather than the 45 nmi specified in note 3. The issue is that the minimum alert time requirement for this scenario is not achievable with an acquisition range of 45 nmi.</p>				

<u>Originator's proposed resolution:</u>  <p>Change the value of note 3 to 64 nm (min requirement) for 90 degree conflict scenarios. Add a paragraph In Appendix H, page H-3 documenting the scenario and calculation process to obtain this value. Modify the subsequent material as Section H3 Antenna Coverage Considerations.</p>
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Working Group 6 Deliberations:

February 22, 2002: This Issue Paper was reviewed by WG6 at their February 2002 meeting. It was agreed that this Issue Paper will be addressed in Revision A. Updates to Appendix H and Note 3 of Table 3-4 will be included in DO-242A and will close this IP.

Working Group 6 Final Resolution:

Note 3 of Table 3-4(a) in the draft DO-242A sent to RTCA on March 4, 2002 reads as follows:

3. *The 90 NM range requirement applies in the forward direction. The required range aft is 40 NM. The required range 90 degrees to port and starboard is 64 NM. (see Appendix H) [The 120 NM desired range applies in the forward direction. The desired range aft is 48 NM. The desired range 90 degrees to port and starboard is 85 NM.]*

The reader is also referred to Section H.2 of Appendix H from the draft DO-242A sent to RTCA on March 4, 2002.